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AUTHOR Herman, Edward F.; And Others
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ABSTRACT

Three papers present views on women in technology programs and occupations, and on Corning Community College's (CCC's) program to encourage women to enter technological fields in which they have been historically underrepresented. First, Edward F. Herman presents the historical background to the development of CCC's Women in Technology program, which, on a low-cost, volunteer basis, attempts to address the stereotyping which discourages women from entering technological programs; increase the number of women entering these programs; examine sexist attitudes and instructional materials; sensitize faculty to the messages they transmit to women in technological fields; and provide support for women in a male-dominated classroom. Next, George Gifford highlights the three components of the Women in Technology Program: (1) luncheons, to which all women technology students are invited to discuss their experiences and difficulties; (2) interviews, conducted by a female counselor with women technology students to identify sex bias in instructional materials, special treatment received in class, and the degree of acceptance of the women; and (3) a Women in Technology Day for community women. Finally, Peggy Weeks in "Women in Technology: A Personal View," delivers an account of her experiences as a woman who entered the field of metallurgy in industry, and later accepted a position at CCC teaching mechanical technology. Weeks discusses some of the barriers faced by women in technology programs and in the workforce. (HB)

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WOMEN IN TECHNOLOGY:
THE EVOLUTION OF A SIMPLE PROGRAM THAT WORKS

Edward F. Herman
George L. Gifford
Peggy Weeks

Papers presented at the annual meeting of the American Educational Research Association in New Orleans, Louisiana on April 26, 1984.

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WOMEN IN TECHNOLOGY

THE EVOLUTION OF A SIMPLE PROGRAM THAT WORKS

BY

EDWARD F. HERMAN

PROFESSOR OF ELECTRICAL TECHNOLOGY

CORNING COMMUNITY COLLEGE

CORNING, NEW YORK 14830

A paper prepared for presentation at the annual meeting of the American Educational Research Association in New Orleans, Louisiana on April 26, 1984.

WOMEN IN TECHNOLOGY
The Evolution of a Simple Program that Works

OBJECTIVES:

1. To present the historical background that led to the development of Corning Community College's present Women in Technology program.
2. To present an overview of the current "Low-Budget, No-Frills Women in Technology Program" at Corning Community College.

PERSPECTIVES:

Corning Community College has prided itself over the years on being a sensitive, caring institution of higher learning. An attitude instilled in faculty and staff from the very beginning has been to consider the human needs of students and to do all possible to provide for their physical and emotional well-being as they pursued their studies. Successive administrations have encouraged this ambience at the institution by providing workshops and seminars for faculty and staff in the areas of racism, sexism, humanistic education, the adult learner and the handicapped.

While those activities undoubtedly heightened the awareness of the college community, they also created a predictable backlash. In particular, the issues of racism and sexism provoked angry reaction in the 1970's from many people. Some felt that perceived favoritism of minorities was not appropriate. Others felt that women's issues such as equal pay for equal work were being overstated. In both cases many felt that the institution was forcing them to deal with issues against their will.

In spite of this not-too-favorable institutional climate, it was the writer's feeling that it was the time (1977) to begin to deal with the huge imbalance in male/female enrollments in the college's programs in Engineering Technology. Women students in mechanical or electronic design were a rare species. Very rare. The problem seemed to be very widespread; parents who simply could not see Sally designing a gear train, high school counselors who, without a great deal of thought, would routinely direct bright women only into traditional fields such as nursing or secretarial studies, college teachers who openly expressed their thoughts concerning women in a "man's field", and even from many women students themselves who had been conditioned to think of work in technology as somehow a threat to their femininity or as beyond their capability. For what seemed no good reason, women in droves were entering fields that, on average, paid about one-half that offered graduates in technology. Many single parents were entering the job market at salary levels that almost ensured their poverty.

Industry was searching valiantly for women and minorities in the technical specialty areas to fill employment quotas, and not finding them. There was a great human resource - the energy and intellect of hundreds of women - essentially going to waste.

Because of the hostility in some quarters on campus to special programs for women, it was felt that anything done had to be low key and totally voluntary. In May of 1977 during the writer's tenure as Acting Chair of the Technology Division, a small one-time program was held on campus to explore "Equal opportunity in the technology programs at Corning Community College".

Representatives from industry, the college President, some of the technology faculty, area high school counselors and a few women students met to discuss ideas which could lead to increased opportunities for female students in the technologies. While nothing startling developed immediately, the workshop did serve to point out the reality and severity of the problem.

During this same time period of the late seventies, the federal government began to attach greater importance to the achievement of sex equity in vocational programs, such as those in technology, at Corning Community College. This was made very clear in the requirements for grant proposals for laboratory equipment under amendments to the Vocational Education Act. That federal legislation has provided the college with a significant amount of laboratory equipment over the past fifteen years. And so two factors coincided to provide the impetus for development of a program to address the lack of opportunity for women in technology.

One factor was the insistence of the federal government that action be taken. The other was the writer's strong personal conviction that something should be done. My wife is a strong advocate of women's rights and she has given support and encouragement throughout the development of the program.

METHODS:

At the outset, there was no specific program, nor was one really contemplated. There was no budget, no organization. It was simply four or five teachers and counselors interested in addressing the question of sex equity.

For all involved, it was an extra, unpaid, freely given effort. Informal discussions led to the following list of items to be addressed. They, in reality, have become objectives for the program.

1. A concern that women were being stereotyped out of our technology programs.
2. A desire to increase the number of women entering the programs.
3. The need to examine our classroom environment with respect to sexist books and materials, teacher attitudes and general acceptance of women.
4. The need to sensitize faculty to subtle (and overt) messages that they transmit to women concerning the appropriateness of their being in the field of technology.
5. The desire to provide a support group for women as they entered a new, male-dominated classroom environment.

In the fall of 1980, it was decided that as many women technology students as possible should be interviewed personally to see if there was sex bias present in any of the instructional materials in use, to see if they were given any special treatment in class and to find out the degree of acceptance of women by male faculty and students. This was done, privately, by a female counselor and has been done in each subsequent year to the present.

Results of the interviews are discussed each year by the technology faculty in a division meeting. They will be presented in a separate paper during this symposium by Dr. George Gifford, Chairman of the Math, Physics, Technology Division at Corning Community College.

During the same school year ('80-81) other activities were started, still by the same small group of concerned people willing to spend a small amount of time on an extra project. A luncheon was held in May 1981, in which all women technology students were invited to come and discuss their experiences and difficulties, if any. This was a "sheltered" luncheon in that the only men present were the division chairman and the writer. This activity has been conducted every semester since, with the financial support and encouragement of the Dean of Instruction, who also attends when possible. It has served to help women students build a support group. A short questionnaire was developed to be used each semester for gaining information parallel to that gained in the personal interviews discussed above, the hope being to obtain data from some students that might not make it to a personal interview. Again, that process has been followed each year since 1980 and the data is reviewed by the faculty to confirm (hopefully) that the classroom environment is non-sexist.

Other special projects were also undertaken. A campus-wide Women in Technology Day has been held annually to provide women in the community an opportunity to come on campus, visit the various technology programs and talk with faculty in several of the areas. This career exploration day is now sponsored by the Student Services office on campus in conjunction with Continuing Education and Community Services. Information was sought concerning sex equity activities at other colleges.

Trident Technical College (Charleston, S.C.) and Morrisville (NY) Agricultural and Technical College both provided videotapes used in their programs relating to women in technology.

A campus-wide workshop on non-traditional occupations was sponsored by the Women in Technology group, with financial assistance from the college's faculty development fund. Jo Shuchat from the Technical Education Research Center at Cambridge, Mass. conducted that workshop. A panel discussion was held on campus in which women students and members of the local chapter of the Society of Women Engineers exchanged ideas and experiences relating to women in the technical field.

At the present time the program is proceeding at a tranquil pace without a huge effort on any one person's part. The main elements are questionnaires (administered to all women technology students), interviews with as many women students as possible by a female counselor from the college's Academic Advising and Counseling staff, luncheons twice yearly supported by the Dean of Instruction and feedback of all the results to the faculty by the technology division chair.

DATA SOURCES:

The primary source of ideas for the Women in Technology program was the people themselves who conceived it:

-Marianne Dormand and Jane McGarry, Counselors

-Joanne Herman, Coordinator of Student Progress

-Margaret Weeks and Edward Herman, Technology faculty.

In addition, valuable input was provided by Kay Mather, FACIT Program (Female Access to Careers in Industrial Technology) at Trident Technical College, Charleston, S.C. and Susan Manchester, Women and Minorities in Engineering Technology Project at the Agricultural and Technical College in Morrisville, NY.

Jo Shuchat of the Technical Education Research Center, 44 Brattle St., Cambridge, Mass., 02138 shared her broad experience and expertise with our faculty during a workshop.

"Diagnosing the Quiet Revolution - A Guide to Sex Equity in Post-secondary Occupational Education" from the Two-Year College Development Center of the State University of New York in Albany, NY was helpful, as was the "Nuts and Bolts of N.T.O." by Jo Shuchat of the T.E.R.C. at Cambridge, Mass. An interesting publication summarizing women's studies and services in the State University of New York is the twenty-three page SUNY special report "All She Is Capable of Being, Women's Studies and Services - December 1982" by Dr. Maria R. Ruden of the SUNY Office of University Affairs and Development.

CONCLUSIONS:

A detailed examination of progress made under the Women in Technology program will be presented by Dr. George L. Gifford in a companion paper during this symposium. In looking at the objectives as stated earlier in this paper, it does seem that significant progress has been achieved. Women are entering the technology programs in increasing numbers (one might suspect that would have happened without the project).

Teachers are highly sensitized to avoid sexist language and teaching materials, and performance in this regard is discussed yearly by the faculty. Women students are providing abundant feedback in questionnaires, interviews and informal luncheons. The great weight of evidence is that by and large there is very little sexist atmosphere in our classes.

If there is any problem at all, it is that some women feel that instructors are being too helpful, preventing them from learning by making mistakes.

We now have two female technology faculty members, compared to zero in 1978, which has helped greatly in the sense of providing role models.

There are some things that do not show up in a statistical analysis but give weight to the idea that the program is working. In the past three years, female technology students have won top academic honors at graduation far in excess of their numbers in the total population. Women students took part in a locally-produced half-hour TV show to discuss being a woman in the technical field.

Two years ago women students (all of whom were on the Dean's List) won three of the four top elected positions in the student Engineering Technology Guild and provided a year of superb leadership.

While the Women in Technology program is simple - and easy - and costs almost nothing - it has been praised by the Grants Administration Unit of State University of New York as a model for the rest of the state.

It works for Corning Community College. Perhaps it might also work at your institution.

Corning, New York
February 29, 1984

WOMEN IN TECHNOLOGY

THE EVOLUTION OF A SIMPLE PROGRAM THAT WORKS

BY

DR. GEORGE L. GIFFORD

CHAIRMAN OF MATH/PHYSICS/TECHNOLOGY DIVISION

CORNING COMMUNITY COLLEGE

CORNING, NEW YORK 14830

A paper prepared for presentation at the annual meeting of the American Educational Research Association in New Orleans, Louisiana on April 26, 1984.

Good Afternoon and welcome to our little corner of New Orleans. I would first like to point out that Ms. Dorman is no longer on our staff, and due to other obligations, Nancy Andrews could not attend. I want it clearly understood that these women were not "bumped" from the program so that I could visit New Orleans with my wife. Even though I had to agree to do three segments of this symposium, I can only assume the rest of the panel finally recognized my true worth.

To review, our Women in Technology Activities consist of three components:

COMPONENTS OF PROGRAM

. Luncheons

. Interview with Counselor

. Women in Technology Day

The luncheons are held each fall and provide entering women the opportunity to meet their peers, our counselors and specifically the women faculty. (Overhead of Invitation).

This is a very relaxed get-together in which the women share their problems and concerns about all aspects of their education. It's our way of saying we care.

The second component of our program is the interview process in which our female technical students meet with a female counselor. I have summarized this information by years so that some of the trends can be more readily identified. At this point I now assume the role of Molly Dorman.

1980 Comments

The first slide summarizes the pent-up interest on the part of the students to share their feelings and concerns.

> "So many comments have been made that I feel the suggestions of one of the girls that you try to set up a single meeting with the group of female students is a good one."
>
> Chris Hosley
> Counselor

The following two slides highlight the primary concerns expressed at this first meeting.

Awareness

> "There is a need for awareness by high school and pre-entrance college advisors that there are other career possibilities for females other than nursing, secretarial or teaching."

I think this problem now represents our greatest concern and summarizes the goals inherent in our out-reach program. The high school counselors don't recognize the opportunities in the technologies for women, and because of the structures of our pre-entry program, there is a natural tendency to get the students enrolled without highlighting the pros and cons of each program. This is not intentional but obviously the students see this as a deficiency in our pre-entry process.

Speech Patterns

- degrading or assuming attitude

- male faculty unaware of overtones implicit in statement "let me help you." Oh! you don't have to do that. Jim and Ms. _____ did a nice job.

Being a male dominated discipline, this problem is a natural pheonomena. Even though it applies only to a few faculty, the responsibility for weeding this attitude out rests with all of us. Part of this feedback comes because our technical students must take a machine tools course. The staff who teaches the lab segment of the course are retired tool and die makers. They do a fantastic job in their specialty area, but they aren't trained teachers. We also have at least one very chauvinistic faculty member who prides himself on making irritating statements to students and staff. Most of the comments are made in fun (I hope!), without a realization of their impact.

1981 Comments

Old dogs can learn new tricks! 1981 was a year of genuine progress. I think the fact that we were doing something, anything, took pressure off the women students.

> "Students glad that department was attending to the issue of sex bias."
>
> "Expressed satisfaction with the program and faculty in general."
>
> "Several students commented on the luncheon and what a positive experience it was and voiced a hope that it happen again next year."
>
> Molly Dorman
> Counselor

Problems still existed, but the students now had enough confidence to deal with the issues in a different manner. Hopefully the Women in Technology program helped create this environment.

Student Recommendations

Remove bikini-clad slide in machine tools presentation.

On the question of male acceptance of women, the women responded. "Poll the men"

1982 Comments

The focus has now shifted to the adjunct faculty. I must admit I never thought about this possibility, even though it was a potential problem area. We did not make our adjunct faculty aware of our women in technology efforts. I guess my only excuse was/is that we were having enough problems finding qualified faculty. I think the important point is that this process brought to light an area of concern that we had previously overlooked.

Adjunct Faculty

- We need to orient evening/adjunct faculty to the presence and significance of women technical students.
- women were always helped last in class (even males recognized problem).
- told women of a tech job that involved some typing

I think we all could have anticipated these reactions. These results did reaffirm my own personal observations and added validity to how I viewed the problems.

Acceptance by Male Students

- most males happy to have me in class
- a few were stand-offish
- questioned why I was in class
- some teasing
- "Women should be at home" (male student comment)

The following expressions used by faculty have some sexual overtones that I'm sure added spice to the discussions. You can also identify two different reactions on the part of the faculty. First, a stand-offish attitude of "show me you can do it," second, the fatherly approach. Both create problems as you can easily imagine. The women need to be supported but not smothered.

Acceptance by Faculty

- they expected us to know it before taught
  Example: Get me a prick punch
  I need a feeler gage
- we had to prove we could do it
- treated me special to ensure I succeeded

1983 Comments

Except for the "bunny" picture, we never had any negative feedback on the instructional material. This didn't mean it wasn't there because it was. For example, Engineering technology books ten years ago didn't show pictures of women in these occupations.

"Sex bias in institutional materials is rarely perceived."

Molly Dorman
Counselor

Special Treatment in Class

- Women saw "extra help" as a drawback.
- "Women don't do well in my classes."
- Female perception: Instructor enjoys making it harder for females.
- Instructor seems to "shelter" women slightly.
- Describes what women do well and what they don't do well (indicated a predisposition).

My reaction to the 1981 student comments was, "Old dogs can learn new tricks," what I didn't add was the second part of that modified adage, "they forget even quicker." Maybe this is the case of two steps forward and one step backwards. Based on these reactions, we seem to be back at square one. We give: a) too much help and, b) project a failure attitude towards the women. In defense, I think the women are talking about one instructor out of a dozen.

There seems to be some positive movement here at least there is no reference to "should-be-at-home."

Male Student Acceptance

- like having us in class but don't take us seriously.
- I feel I get along with males better
- students accept us more than faculty
- males seemed surprised to see women in classes
- nobody distinguishes - we get along very well

Here is the essence of our problem in dealing with women. How do we distinguish between those who need help and those that don't. Practically, we'll never eliminate all the problems. The only thing we can do is let the students know we care and they will make the necessary adjustments. We represent only a microcosm of the real work and women have to learn to cope.

Faculty Acceptance

- they expect more from men - helped us too much
- treated like any other student
- instructor thought I should drop course when I had a "C". He didn't suggest that to men.

In 1983 we did add a question specifically on coping. Student responses were gratifying because I think they showed we had been focusing on each of the trouble areas identified.

Is there something CCC could do to help you cope?

- have more women
- guest speakers
- don't treat us as a minority
- we need to know how to handle ourselves so we can cope on the job.
- get involved with Tech Club (develops relationship and support group)
- faculty shouldn't single out my work
- as single parent, late arrival of financial aid a problem
- not a thing needs to be changed

Let's now summarize what these three years have told us. I left off "get to your own counselors." Probably 15-20% of our students change programs during their stay at Corning.

Summary

- textbooks and handout material not sex biased in technologies
- be especially careful of unintentional "put-downs" in conversations
- develop some type of support system for women
  - .luncheons
  - .counseling support
  - .role model
  - .special workshops
- Give both negative and positive comments back to faculty
- Don't forget your part-time faculty
- Male students seem to be more accepting than faculty
- Try not to overprotect the women students
- let students know you care
- get to high school counselors

What's next? Here's a list of possibilities. I think the fact that we had to prepare this presentation will provide us with the additional enthusiasm needed to deal with these issues. Maybe we'll ask to be invited back in a couple of years and share our new findings.

Future

- should we attempt to prepare students (both male and female) to deal with sex harassment/discrimination on the job?
- should we develop a pre-entry program for women to help them develop:
  - . mechanic skill
  - . improve their technical vocabulary
- increase number of role models
- develop women intern program with industry (summers/afternoons)
- link up with Professional Organization
  - .Society of Women Engineers
- outreach and recruitment
  - .women faculty speak at high schools
  - .speak to high school counselors
- follow-up of graduates

Up until this point, I have been Molly Dorman. Now I become Nancy Andrews. Nancy now coordinates the Women in Technology Day held each May or June. Up until two years ago this was done by Judy Bacalles, in our Continuing Education office. Due to some institutional restructuring, Nancy has now assumed these responsibilities. Here's a copy of the ad we print in our local newspapers.

(overheads of ad)

I think the following data shows how important this type of program is to women considering career changes. Notice that 40% have college degrees and 44% were employed. That's thirty-seven people who took time off from work to attend this program.

Demographics of 1983
Women in Technology Day

- 85 people registered
- 58% felt all segments of the program helpful
  - .panel discussion
  - .demonstrations
  - .summary
- 45/85 attended two 8 lab presentations
- 50% wanted longer session on one particular technology
- 40% had college degrees
- 61% had taken college courses
- 44% were employed

It should be pointed out that this workshop includes program discussions other than just the E.T., M.T. and I.T. curricula we are focusing during this symposium.

Upon the conclusion of the program, the participants indicated we had answered many of their questions or at least whet their appetite for more information. The "seeds" of interest had been planted.

Results

- 67% thought they would enroll in a technology
- 56% were interested in career counseling
- 33% were interested in admissions information
- 28% were interested in continuing education information

Up until last year we were doing this program out of concern, without too much interest in financial benefits to the college. We saw a problem and attempted to correct it. The President saw it a little differently. He wanted to know if the program was doing any good. I was as impressed as he was.

Bottom Line

33.8% of the participants enrolled for 272.5 credit hours the summer and fall of 1983 creating 9.08 FTE's.

$35,000 income - summer/fall
$3,000 cost
$16,000 income projected spring 1984

The initial costs were for the luncheons ($50), a hundred or so for a consultant one year, a trip here and there to remove the cob-webs (New Orleans). If the program starts to grow and generates the FTE's mentioned before, additional funds will come naturally.

Now I'll take on my final role as George Gifford and look at some of the administrative implications of this program. There really is nothing profound in my recommendations, maybe that makes them worthwhile.

Administrative Recommendations

Don't try to convert everyone

Give interested faculty morale and financial support.

Start small...think big!!

Remember...one-half the population are women

Don't try to conquer the world the first year. As a division chairman, I suggest you get your house in order so that you can then expand your sphere of influence. Lay a good foundation now because there may come a day when you will wish you had women knocking at your doors.

After you have your own operations in order, or reasonably so, I think you will have to contend with the above problems. High school counselors seemed to get their "stars" based on the number of students that go to four year colleges, not community colleges. I think this is changing, but there is still a lot of work that needs to be done to ensure women perceive equal opportunity in all career categories. The obvious place where this must start is in the high school or at the elementary school level.

Major Problems

High school counselors

faculty complacency

why worry...we have too many students now

Major Benefits

I'm getting tired of looking at men all the time.

Thank you for attending our symposium.

Women in Technology:
A Personal View

by

Peggy Weeks
Assistant Professor of Mechanical Technology
Corning Community College
Corning, NY 14830

The Census Bureau recently reported that thousands of men and women have crossed over into non-traditional careers, working in fields once considered the exclusive preserve of one sex or the other. It is now perfectly acceptable, even fashionable, for men to enter the nursing profession and for women to become welders and bricklayers. Special emphasis is being placed on recruiting women into the technology and engineering professions, an activity which has been experiencing very positive results. The misconceptions regarding engineering and technology professions as "unfeminine" are vanishing, and the result is an increase in the number of women entering these fields.

These statistics are not foreign to me; as a woman in a non-traditional field, I have been in the forefront of the changes taking place in America's work force for more than ten years. I am somewhat surprised by the number of people, men and women alike, who still ask me why I chose the field of metallurgy. I ask them if they are referring to the fact that they don't know many women metallurgists. Their response is usually that they don't know <u>any</u> metallurgists. I then begin to explain my seemingly unusual choice.

Mine is not a unique story. I did well in math and science, attending a large high school where teachers encouraged me in these subjects. I grew up in Pittsburgh; the "Steel City" once known for its billowing smokestacks, where metallurgical engineering was a fairly common profession. Of course, there weren't too many women metallurgists employed by the mills at that time, nor did I ever have a woman mathematics or science teacher in high school. As a result, I had to rely on male mentors and role models to guide me in a career choice. I was exposed to the field of metallurgy in high school, as two area steel companies sponsored active youth groups in which I participated. I thought that I might enjoy a career in the metallurgical field, and when I visited a local university with an excellent metallurgy department, I became sold on that idea.

Upon receiving my B.S. degree in Metallurgy and Materials Science from Carnegie-Mellon University, I went to work at Corning Glass Works as a process engineer in a development group. The job was a rewarding and challenging one, and I worked in that position for over two years.

One day, though, I learned of an opportunity that would change my career direction. There was an opening at Corning Community College for a mechanical technology instructor; my thoughts turned toward the possibilities of teaching. I had always admired a number of instructors in high school and in college. I remember wishing that I had their talents for teaching, and buried in the back of my mind was a longing to teach. But I was a metallurgist without a master's degree and was nearly convinced that I would not be considered for the position. Nevertheless, I decided to phone the chairman of the engineering technology division to request an interview.

I was granted the interview and, to my amazement, was offered the job. I had no background in teaching other than a semester of tutoring in college. Yet, I did not have to think twice about taking the job. I suppose I thought of it as a low risk adventure with the option to return to industry if I failed as a teacher. I knew I would put much effort into this endeavor, though.

I still do not know to this day exactly what made me change careers so abruptly. It was not that I was unhappy in industry. Perhaps I had always dreamed of being like the college professors whom I had admired and respected. Too, I had always believed in relying on intuition; and my intuition was telling me to take the job.

I will dispense with the details of that first year in teaching. Suffice it to say that the kindest comment on the student evaluation forms was "She's a new teacher; she'll probably improve." I had the additional challenge of being a female in a traditionally male field. Ninety percent of my students were men, many of whom were my age or older, and some of them had a difficult time believing that a woman knew anything about a technical subject. Somewhat surprising to me was that the women were even more critical, sometimes to the point of being extremely blunt--and approached me about my lack of teaching skills. I do not know whether this criticism had anything to do with the fact that I was a woman, but I had a difficult time imagining the students saying the same things to a male instructor. There were very few situations in industry where my being a woman made a difference--at least I was not made aware of this. These problems would eventually pass, but they were disconcerting that first year.

I have almost completed four years of teaching, and I have absolutely no regrets about making a career change. I suppose that I no longer am employed in a non-traditional occupation, but I still keep abreast of my non-traditional field. In addition, I teach non-traditional courses, and the majority of my students are still male. I take a special interest in my women students, however.

There was a time when I would not have reached out to these women and would not have given them any additional encouragement. I was turned off by the idea of affirmative action in industry, and thought the special treatment the women engineers were given was accentuating the differences rather than addressing any real problems. As I have already mentioned, I had experienced no problems in industry, or in college, for that matter, that related to my being a woman. I assumed, therefore, that no other women were experiencing problems.

Women are experiencing problems, though, and my perception of helping women in non-traditional fields has changed since entering the teaching profession. I have kept in touch with women professionals in industry, and I frequently get together with them to talk about their experiences. My closest contact is a friend, a crystallographer who has worked in the scientific world for a number of years. She has told me of her experiences of discrimination and other problems related to her being a woman in a traditionally male field. More important, however, have been her tales of other younger women in industry still experiencing similar problems. Another friend, a young engineer working for my former employer, has recently been going through difficult times--being treated by older male engineers as a secretary and as a courier rather than as a person with technical expertise.

These are only a few of the tales which forced me to re-evaluate my stand on affirmative action and on giving women additional attention. Discussions with one of my colleagues (a male instructor, by the way!) have helped me to see that my initial reactions were biased and narrow-minded. A workshop with Jo Shuchat of TERC held on the College's campus also made me realize that the women in my classes may experience problems of discrimination in the future.

I believe that the most important reasons for my change in attitude have been the women students themselves. When I was younger, my mother, a widow at the age of 32, told my sister and me that she wanted us to get a good education. She probably was not thinking of our education as a stepping stone to a career, but rather as "something to fall back on." I am seeing a number of women in my classes, divorced, widowed, young single women, looking for challenging and well-paying careers, some simply looking for a way to support their children and themselves. It is to these women that I can relate my mother's wish for me. They have both the need and the desire to be employed in a non-traditional field--in jobs that pay a living wage.

It has given me a great deal of pleasure to work with the women technology students who have crossed my path these last four years. Although I would never want to go through another "first year" of teaching, that first year gave me insight into problems that my women students may eventually encounter. I felt alone and very different from the other instructors, as I had no prior teaching experience, and I was the only female technology instructor. I can recall a similar time in industry when I first started working for Corning Glass--often thinking that I didn't know anything and that the male engineers were far more intelligent and creative than I was. After all, they appeared so self-confident and always sounded as though they knew what was going on. I believe that females are taught to play the "dumb" role; that is, if they are confused and inundated with work, they tend to let their thoughts and feelings be known. The truth is that men go through exactly the same experiences--feelings of inadequacy and isolation. They just seem to do a better job of hiding it.

I have been involved in a number of programs for women in technology. The Women in Technology Day, sponsored by Student Services, began the year I started teaching at Corning Community College. This is an outreach program to inform women in the community about technological programs and careers. We bring the women together and introduce them to the various technology programs at CCC, then let them choose a few of the specific programs that interest them. They have an opportunity to visit the professors and facilities across campus, and to ask questions about the programs and the employment opportunities.

I have also been involved with the Adult Vocational Counseling Center in speaking to area women about careers in technology. The women, especially adults over 25, are still gravitating to the traditional fields--nursing and secretarial studies, to name the most popular. There is a lack of self-confidence among these women, and math anxiety is a reality for them. Some are showing interest in computers--but again, the adult women are fearful of the non-traditional fields. Technology is just too complex and overwhelming.

We, of course, are trying to allay these fears. It has been a positive experience for me to know a number of delightful women in the technology programs over the past few years. They are mainly the older, more mature women, enrolled at CCC because they want to be, and because they have the economic need. One of the advantages of teaching at a community college is that there are many adult students, most of whom are there out of desire--not because daddy is footing the bill, or because they have nothing better to do.

It is the personal contact with the women that I find most rewarding. I can think of a dozen women who have graduated in the technology disciplines--interesting and intelligent women, some of whom have kept in touch, some who return to CCC to help us with our outreach and informational programs. They are valuable resources: one woman, a former hairdresser; one, a high school history teacher; still another, a housewife with teenage children; a divorced army veteran with two children; an artist. These are the women who are succeeding in our programs.

As a co-chairman of the local Society of Women Engineers Career Guidance Committee, I maintain contact with women professionals who have a genuine interest in career equality for women. From time to time, we invite these women to the campus to speak with our students; one program in particular involved a panel discussion to give the women students some idea of what technologists do and what problems and experiences are unique to women employed in this field. Topics have included raising a family and simultaneously having a career; dealing with social attitudes and sexual harrassment; being treated as "the weaker sex"; and isolation. Luncheons for the students provide an informal setting where instructors, administrators, and at times women from industry can meet with them and talk about issues related to women in technology. Films and guest speakers also help us to inform the women in our programs.

Having worked in industry, I have established and maintain communication with my former contacts. Because of this, it is easy for me to set up field trips, shadowing experiences, and even job interviews for my students. Since industry is working under the same affirmative action laws that educational institutions are, companies are looking for women to fill the non-traditional jobs, and they are usually more than happy to work with us on programs dealing with women in technology. Corning Glass Works is extremely cooperative in providing the College with whatever it needs along these lines.

Another outcome of my teaching at the College has been the influence on other women in industry to think about teaching as a career option. One woman, working as a supervisor in a manufacturing plant where I once worked, did not want to return to her 50 to 60 hour a week job after her first child was born. Knowing that I had made the career change, she contacted me and asked if there were any teaching openings in her field at the College. She is now teaching in the technology division. Since she was hired, I have received phone calls from a few other women asking about teaching opportunities at CCC. I enjoy sharing my experiences with them and hope that I have set a precedent for more women to pursue teaching careers in the technologies.

I am often referred to as a role model. I never really thought of myself as a standard for imitation or comparison. But I do occasionally make trips to area junior and senior high schools to talk to students about career opportunities in technology-related fields. Many of the students have already decided what they want to be. Children in the rural areas want to be veterinarians and farmers and teachers; those in the "city" schools see a broader range of opportunities. The conclusion? If we want to see more women pursuing technological careers, we've got to have role models, and we've got to get across to our young women that we're not the exceptions--that they can do it, too!

Does my presence at the College make a difference? Are there more women entering the technology programs and "sticking it out" because they see women like myself who have chosen a non-traditional field? I think the students at CCC see me as a teacher first and, therefore, see me in a traditional role for women. I believe that it is more important for them to see women succeeding in industry; and that is why I encourage the students to talk to women in industrial settings.

We at CCC have attempted to encourage women in our technology programs. If success is measured by the numbers of women in the programs, then we've still got some homework to do. But there is a sense of satisfaction in my mind that we are not simply treading water, and that our efforts have not been in vain. I, for one, will continue to be involved in any program which helps the women to succeed in technology, and which makes them realize that they can build promising careers in a non-traditional field.

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